

10/542000

JC14 Rec'd PCT/PTO 13 JUL 2005

- 1 -

AMENDMENT

(Amendment under the provision of Law Section 11)

To: Examiner of the Patent Office

1. Identification of the International Application
PCT/JP2004/000482

2. Applicant

Name: Sony Corporation
Address: 7-35, Kitashinagawa 6-chome, Shinagawa-ku,
Tokyo 141-0001 Japan
Country of nationality: Japan
Country of residence: Japan

3. Agent

Name: (8213) Patent Attorney, INAMOTO, Yoshio
Address: 711 Building 4F, Nishi-Shinju-ku 7-chome,
Shinjuku-ku, Tokyo 160-0023 JAPAN

4. Items to be Amended

Specification and claims

5. Subject Matter of Amendment

As shown in the attached paper

(1) Specification, page 11, lines 16-20

" As described above, unlike the fact that ordinary TN liquid crystal can be driven with several volts, drivers for driving cholesteric liquid crystal need to have a very high breakdown voltage. Accordingly, it is very difficult to reduce the size and cost of driving circuits and battery."

is amended to

" It is very difficult to reduce the size and cost of driving circuits for driving the cholesteric liquid crystal".

(2) Specification, page 11, lines 23-25

" The present invention has been made in view of such circumstances, and is intended to realize low voltage driving circuits for driving cholesteric liquid crystal."

is amended to

" The present invention has been made in view of such circumstances, and is intended to reduce a voltage value supplied as a driving voltage to each driver for driving cholesteric liquid crystal".

(3) Specification, page 12, lines 1-21

" A display device of the present invention comprises a display means in which, by applying voltages to first electrodes and second electrodes, ... the cholesteric liquid crystal exhibits the planar state."

is amended to

" A display device of the present invention comprises: a display means in which, by applying voltages to row electrodes and column electrodes, ... the column driver to selectively apply, to the column electrodes, the second bipolar driving voltage, which is reverse in polarity to the first bipolar driving voltage applied to scan the row electrodes".

(4) Specification, page 12, line 22 to page 14, line 20

" The first driving means may be supplied with a first driving voltage ... which differ from the first reference voltage and the second reference voltage."

is amended to

" A display method of the present invention includes: a first reference-voltage applying step of supplying zero volts as a first reference voltage (e.g., GND_r) ... a voltage value greater than the voltage value required for setting the state of the cholesteric liquid crystal to a focal conic state".

(5) Specification, page 14, line 21 to page 16, line 18

" In the display device and display method of the present invention, the second reference voltage is applied ... whereby the cholesteric liquid crystal is changed to be in the planar state."

is amended to

" The first bipolar driving voltage and the second

bipolar driving voltage each may have a voltage value in which the sum (e.g., V3+V4) of the absolute values of the third voltage and the fourth voltage is ... perform switching from zero volts to the second voltage (e.g., -V1-V2) whose absolute value is the first voltage and which is reverse in polarity to the first voltage, whereby the cholesteric liquid crystal is changed to be in the planar state."

(6) Specification, page 26, lines 4-15

" As described above, in the liquid crystal display device including the liquid crystal driving circuit 41 to which the present invention is applied, ... liquid crystal display device size can be reduced."

is amended to

" As described above, in the liquid crystal display device including the liquid crystal driving circuit 41 to which the present invention is applied, by resetting display while suppressing the voltages supplied as driving voltages to the drivers, the color of arbitrary pixels can be inverted from a specified wavelength color to black.

In addition, the driving voltages of drivers (here, the column driver 52 and the row driver 53) of the liquid crystal driving circuit for driving the cholesteric liquid crystal panel 1 decrease, whereby elements whose package is small can be selected for the drivers. Thus, liquid crystal

display device size can be reduced".

(7) Specification, page 30, lines 14-25

" Since, in displaying information after entire resetting to white, a method similar to ... breakout voltage required for the row driver 53 and the column driver 52 can be reduced to approximately half of that in the case of the related art"

is amended to

" Since, in display of information after entire planar resetting, a method similar to that in a liquid crystal display device of the related art which uses cholesteric liquid crystal is used, the driving voltages required by the row driver 53 and the column driver 52 are determined by the inter-pixel-electrode voltage required for setting the cholesteric liquid crystal to the focal conic state. In other words, in the liquid crystal display device including the liquid crystal driving circuit 41 to which the present invention is applied, each voltage supplied as a driving voltage to the row driver 53 and the column driver 52 can be reduced to approximately half of that in the case of the related art".

(8) Specification, page, 31, lines 1-8

" Therefore, according to the liquid crystal display device including the liquid crystal driving circuit 41 to which the present invention is applied, ... thus realizing

size reduction and cost reduction concerning the liquid crystal driving circuits for driving the cholesteric liquid crystal panel 1"

is amended to

" Therefore, according to the liquid crystal display device including the liquid crystal driving circuit 41 to which the present invention is applied, the color of arbitrary pixels can be inverted from a specified wavelength color to black, while suppressing voltages supplied as driving voltages to drivers, and reduced size and cost of a liquid crystal driving circuit for driving the cholesteric liquid crystal panel 1 can be realized".

(9) Claims 1 to 10 are amended as shown in the attached paper.

6. List of Attached Documents

- (1) Specification, pages 11 to 14
- (2) Specification, pages 15 to 15/5
- (3) Specification, pages 16 and 16/1
- (4) Specification, page 26
- (5) Specification, pages 30 and 31/1
- (6) Claims, pages 33 to 36
- (7) Claims, pages 37 to 37/6